APPENDIX 2

MARKED UP SPECIFICATION

The subject of [[an]] the invention is a method for utilization of rubber wastes with simultaneous ~~carrying~~ performance of pyrolysis of coking coal, particularly compositions of various coking coals in the cells of a coke oven battery.

~~Hitherto~~, rubber wastes in [[a]] the form of [[the]] used rubber products such as car tires, tubes, conveyor belts, hoses, etc., are subjected in a limited range to [[the]] mechanical manufacturing to obtain so called "grinding product". However, a remarkable majority of rubber wastes is directed to waste dumps or it is burned in the open~~ed~~ air, ~~in an~~ with access [[of]] to oxygen in [[a]] waste combustion plants or in a rotary furnaces in cement factories.

~~Carrying of such an~~ Such utilization of rubber wastes causes [[a]] contamination and degradation of the natural environment and a [[lost]] loss of valuable ~~components~~ materials, which can be reused for production of rubber articles ~~production~~.

The method according to the invention for utilization of rubber wastes with a simultaneous ~~carrying~~ performance of coking coal pyrolysis, ~~comprising~~ including filling of ~~consequent~~ cells of a coke oven battery with a charge of a previously prepared and disintegrated blend of coking coals according to the invention is characterized in[[,]] that to each charge of the blend of coking coals of a size of particles [[0,1 - 5,0]] 0.1 – 5.0 mm in an amount of 95 - 99% by weight, a rubber granulate is added in [[a]] the form of a rubber grain of a size of particles [[0,1 - 5,0]] 0.1 – 5.0 mm in an amount of 1 - 5% by weight, in coking plants with a ~~compacted~~ compacting system [[of]] for filling the cells.

In [[coke]] the coking plants with a gravitational charge filling system, the preferable size of particles is between [[0,1 - 20,0]] 0.1 and 20.0 mm. Formed in this way, a mixture of the coking coals [[charge]] and the rubber grain is thickened by mechanical compacting ~~till an~~ until a uniform structure of a whole charge is obtained. A process for utilization of rubber wastes is carried out in a closed system without [[an]] access [[of]] to oxygen, at [[the]] a temperature of at least 900 °C with a simultaneous pyrolysis of coal.

~~The advantage of an~~ The invention ~~is a remarkable~~ remarkably decreases the an emission of harmful ~~products~~ materials~~, formed hitherto as a result of~~ produced by the conventional method that performs a combustion of rubber wastes~~, which was carried out~~ with [[an]] access [[of]] to oxygen in ~~opened~~ open systems[[,]]. The invention further [[a]] decreases [[of]] contamination and degradation of [[a]] the natural environment, and ~~an elimination of~~ eliminates wastes~~, and, moreover,~~. Moreover, the invention ~~a recovery of~~ enables a recovery of carbon derivatives, which can be reused directly for production of rubber articles in a chemical industry~~, including rubber articles production~~.

EXAMPLE 1

A blend of coking coals is prepared and disintegrated in a ball grinder provided with an appropriate sieves to obtain [[the]] a grain size of 1 - 5 mm. The above-mentioned blend of coals is placed in an amount of [[14.850]] 14,850 kg in one cell of [[the]] a coke oven battery. Then, 150 kg of rubber grain of ~~the particles~~ particle size 5 mm [[are]] is added to the coal blend already placed in a coke oven battery cell. The composition of [[coke]] the coking coals and the rubber grain is compacted

mechanically to obtain a homogenous structure of ~~all the~~ a whole charge. In the same way, filling of other cells of [[a]] the coke oven battery is performed, using siloes containing previously prepared and disintegrated [[coke]] coking coals ~~composition~~ and rubber grain.

After filling [[of]] the cells, ~~is completed~~ a process for utilization of rubber wastes is ~~carried~~ performed in a closed system without [[an]] access [[of]] to oxygen, without forming wastes, in a temperature of 900 °C, with a simultaneous pyrolysis of coal.

When finished, a process for utilization of rubber wastes ~~from~~ performed in each cell of [[a]] the coke oven battery yields [[with]]: coke in an amount of [[11.400]] 11,400 kg, ammonia [[--]] in an amount of [[35,25]] 35.25 kg, benzene [[--]] in an amount of 183 kg, tar [[--]] in an amount of [[745,5]] 745.5 kg, coke oven gas [[--]] in an amount of [[5.034]] 5,034 Nm.

EXAMPLE 2

Proceeding as shown in Example 1, each cell of a coke oven battery ~~cell was~~ is filled with ~~a coal composition~~ coking coals in an amount of [[14.550]] 14,550 kg and rubber grain in an amount of 450 kg.

After a process for utilization of rubber wastes is completed, the following products are obtained from each cell: coke in an amount of [[11.460]] 11,460 kg, ammonia [[--]] in an amount of [[35,25]] 35.25 kg, benzene [[--]] in an amount of 183 kg, tar [[--]] in an amount of [[745,5]] 745.5 kg, coke oven gas [[--]] in an amount of [[5.043]] 5,043 Nm.

As [[it]] can be concluded from the above examples, depending on the ratio of coking coals and rubber grain ~~and a coal blend~~, the process for utilization of rubber

wastes with a simultaneous pyrolysis of coal, yields~~, according to the needs, with controlled,~~ various amounts of products, and can control the amounts of products according to needs.